Catalyst 6500 Series DFC, DFC3A, DFC3B, and DFC3BXL Installation Note

Product numbers:
WS-F6K-DFC(=)
WS-F6K-DFC3A(=)
WS-F6K-DFC3B(=)
WS-F6K-DFC3BXL(=)

Note Throughout this publication, unless otherwise noted, the term DFC refers to the DFC, DFC3A, DFC3B, and DFC3BXL.

This publication describes how to install the Catalyst 6500 series Distributed Forwarding Card (DFC) on Catalyst 6500 series fabric-enabled modules.

Note You can only install the DFC on fabric-enabled modules. See the "Hardware and Software Requirements" section on page 2 for more information.

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Hardware and Software Requirements

The requirements for using the DFC or DFC3A are as follows:

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DFC Hardware and Software Requirements

To install and use the DFC, you need the following:

- Catalyst 6500 series switch (Catalyst 6506, 6509, 6509-NEB, or 6513) or Cisco 7600 series router (Cisco 7606, 7609, or 7613)
- Supervisor Engine 2 with Multilayer Switch Feature Card 2 (MSFC2) running Cisco IOS software on the Supervisor Engine 2 and MSFC2

Note You cannot have a DFC in a system with a Supervisor Engine 720.

- Fabric-enabled module
- Switch Fabric Module (SFM) (WS-C6500-SFM) or SFM 2 (WS-X6500-SFM2)

Note The SFM must be installed in slot 5 or slot 6 of the 6-slot or the 9-slot chassis. The SFM cannot be installed in the 3-slot or 13-slot chassis.

Note The SFM 2 must be installed in slot 5 or slot 6 of the 6-slot or the 9-slot chassis or in slot 7 or slot 8 of the 13-slot chassis.

DFC3A, DFC3B, DFC3BXL Hardware and Software Requirements

To install and use the DFC3A, DFC3B, or DFC3BXL, you need the following:

- Catalyst 6500 series switch (Catalyst 6503, 6506, 6509, 6509-NEB, or 6513) or Cisco 7600 series router (Cisco 7603, 7606, 7609, or 7613)
- Supervisor Engine 720 with MSFC3 running Cisco IOS software on the Supervisor Engine 720 and MSFC3

Note You cannot have a DFC3A, DFC3B, or DFC3BXL in a system with a Supervisor Engine 2.

- Fabric-enabled module

Note Supervisor Engine 720 supports a DFC3A, DFC3B, or DFC3BXL on these WS-X6516-GBIC hardware revisions:

- Lower than 5.0
- 5.4 and higher

Supervisor Engine 720 does not support a DFC3A, DFC3B, or DFC3BXL on WS-X6516-GBIC hardware revisions 5.0 through 5.3. With a Supervisor Engine 720 and with a DFC3A, DFC3B, or DFC3BXL installed, WS-X6516-GBIC hardware revisions 5.0 through 5.3 do not power up.

Without a DFC3A, DFC3B, or DFC3BXL, WS-X6516-GBIC hardware revisions 5.0 through 5.3 operate in bus mode.

Safety Overview

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the translated safety warnings that accompanied this device.

Note: SAVE THESE INSTRUCTIONS

Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Please refer to the Installation Guide, Configuration Guide, or other enclosed additional documentation for further details.

Waarschuwing **BELANGRIJKE VEILIGHEIDSINSTRUCTIES**

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Voor een vertaling van de waarschuwingen die in deze publicatie verschijnen, dient u de vertaalde veiligheidswaarschuwingen te raadplegen die bij dit apparaat worden geleverd.

Opmerking BEWAAR DEZE INSTRUCTIES.

Opmerking Deze documentatie dient gebruikt te worden in combinatie met de installatiehandleiding voor het specifieke product die bij het product wordt geleverd. Raadpleeg de installatiehandleiding, configuratiehandleiding of andere verdere ingesloten documentatie voor meer informatie.

Varoitus **TÄRKEITÄ TURVALLISUUTEEN LIITTYVIÄ OHJEITA**

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä asiakirjassa esitettyjen varoitusten käännökset löydät laitteen mukana toimitetuista ohjeista.

Huomautus SÄILYTÄ NÄMÄ OHJEET

Huomautus Tämä asiakirja on tarkoitettu käytettäväksi yhdessä tuotteen mukana tulleen asennusoppaan kanssa. Katso lisätietoja asennusoppaasta, kokoonpano-oppaasta ja muista mukana toimitetuista asiakirjoista.

Attention **IMPORTANTES INFORMATIONS DE SÉCURITÉ**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez les consignes de sécurité traduites qui accompagnent cet appareil.

Remarque CONSERVEZ CES INFORMATIONS

Remarque Cette documentation doit être utilisée avec le guide spécifique d'installation du produit qui accompagne ce dernier. Veuillez vous reporter au Guide d'installation, au Guide de configuration, ou à toute autre documentation jointe pour de plus amples renseignements.

Warnung **WICHTIGE SICHERHEITSANWEISUNGEN**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewusst. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise sind im Lieferumfang des Geräts enthalten.

Hinweis BEWAHREN SIE DIESE SICHERHEITSANWEISUNGEN AUF

Hinweis Dieses Handbuch ist zum Gebrauch in Verbindung mit dem Installationshandbuch für Ihr Gerät bestimmt, das dem Gerät beiliegt. Entnehmen Sie bitte alle weiteren Informationen dem Handbuch (Installations- oder Konfigurationshandbuch o. Ä.) für Ihr spezifisches Gerät.

Figyelem! **FONTOS BIZTONSÁGI ELÕÍRÁSOK**

Ez a figyelmezetõ jel veszélyre utal. Sérülésveszélyt rejtõ helyzetben van. Mielõtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplõ figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található.

Megjegyzés ÕRIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Megjegyzés Ezt a dokumentációt a készülékhez mellékelt üzembe helyezési útmutatóval együtt kell használni. További tudnivalók a mellékelt Üzembe helyezési útmutatóban (Installation Guide), Konfigurációs útmutatóban (Configuration Guide) vagy más dokumentumban találhatók.

Avvertenza **IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Per le traduzioni delle avvertenze riportate in questo documento, vedere le avvertenze di sicurezza che accompagnano questo dispositivo.

Nota CONSERVARE QUESTE ISTRUZIONI

Nota La presente documentazione va usata congiuntamente alla guida di installazione specifica spedita con il prodotto. Per maggiori informazioni, consultare la Guida all'installazione, la Guida alla configurazione o altra documentazione acclusa.

Advarsel **VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette varselssymbolet betyr fare. Du befinner deg i en situasjon som kan forårsake personskade. Før du utfører arbeid med utstyret, bør du være oppmerksom på farene som er forbundet med elektriske kretssystemer, og du bør være kjent med vanlig praksis for å unngå ulykker. For å se oversettelser av advarslene i denne publikasjonen, se de oversatte sikkerhetsvarslene som følger med denne enheten.

Merk TA VARE PÅ DISSE INSTRUKSJONENE

Merk Denne dokumentasjonen skal brukes i forbindelse med den spesifikke installasjonsveiledningen som fulgte med produktet. Vennligst se installasjonsveiledningen, konfigureringsveiledningen eller annen vedlagt tilleggsdokumentasjon for detaljer.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. O utilizador encontra-se numa situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha em atenção os perigos envolvidos no manuseamento de circuitos eléctricos e familiarize-se com as práticas habituais de prevenção de acidentes. Para ver traduções dos avisos incluídos nesta publicação, consulte os avisos de segurança traduzidos que acompanham este dispositivo.

Nota GUARDE ESTAS INSTRUÇÕES

Nota Esta documentação destina-se a ser utilizada em conjunto com o manual de instalação incluído com o produto específico. Consulte o manual de instalação, o manual de configuração ou outra documentação adicional inclusa, para obter mais informações.

¡Advertencia! **INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Vea las traducciones de las advertencias que acompañan a este dispositivo.

Nota GUARDE ESTAS INSTRUCCIONES

Nota Esta documentación está pensada para ser utilizada con la guía de instalación del producto que lo acompaña. Si necesita más detalles, consulte la Guía de instalación, la Guía de configuración o cualquier documentación adicional adjunta.

Varning! **VIKTIGA SÄKERHETSANVISNINGAR**

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Se översättningarna av de varningsmeddelanden som finns i denna publikation, och se de översatta säkerhetsvarningarna som medföljer denna anordning.

OBS! SPARA DESSA ANVISNINGAR

OBS! Denna dokumentation ska användas i samband med den specifika produktinstallationshandbok som medföljde produkten. Se installationshandboken, konfigurationshandboken eller annan bifogad ytterligare dokumentation för närmare detaljer.

Предупреждение ВАЖНЫЕ СВЕДЕНИЯ ПО БЕЗОПАСНОСТИ

Этот символ предупреждает о наличии опасности. При неправильных действиях возможно получение травм. Перед началом работы с любым оборудованием необходимо ознакомиться с ситуациями, в которых возможно поражение электротоком, и со стандартными действиями для предотвращения несчастных случаев. Переведенный текст предупреждений содержится в соответствующем документе, поставляемом вместе с устройством.

Примечание СОХРАНЯЙТЕ ЭТУ ИНСТРУКЦИЮ
Примечание Эта инструкция должна использоваться вместе с руководством по установке конкретного изделия, входящим в комплект поставки. Дополнительные сведения см. в руководстве по установке, руководстве по настройке и другой документации, поставляемой с изделием.

警告 有关安全的重要说明

这个警告符号指有危险。您所处的环境可能使身体受伤。操作设备前必须意识到电流的危险性，务必熟悉操作标准，以防发生事故。如果需要了解本说明中出现的警告符号的译文，请参阅本装置所附之安全警告译文。

注意 保存这些说明
注意 本文件应与本产品附带的具体安装说明一并阅读。如欲了解详情，请参阅《安装说明》、《配置说明》或所附的其他文件。

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止対策に留意してください。このマニュアルに記載されている警告の各国語版は、装置に付属の「Translated Safety Warnings」を参照してください。

注 これらの注意事項を保管しておいてください。
注 この資料は、製品に付属のインストレーション ガイドと併用してください。詳細は、インストレーション ガイド、コンフィギュレーション ガイド、または添付されているその他のマニュアルを参照してください。

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Parts List

These parts are in the DFC kit:

- One Catalyst 6500 series DFC, DFC3A, DFC3B, or DFC3BXL
- One disposable grounding wrist strap
- One bag of mounting screws

Required Tools

These tools are required to install the Catalyst 6500 series DFC:

- Antistatic mat or foam pad to support the removed module
- Number 1 Phillips screwdriver for the screws and cap nuts that fasten the DFC to the module
- Your own ESD-prevention equipment or the disposable grounding wrist strap included with all upgrade kits, field-replaceable units (FRUs), and spares

Whenever you handle a module, always use a wrist strap or other grounding device to prevent electrostatic discharge (ESD).

Installation Guidelines

Follow these guidelines when installing a DFC:

- When installing the DFC in a system with a Supervisor Engine 720, observe the following restrictions for DFC3/PFC3 mismatch:

PFC Version	DFC Version	Restrictions
PFC3A	DFC3A	No restrictions.
	DFC3B	The DFC3B functions as a DFC3A.
	DFC3BXL	The DFC3BXL functions as a DFC3A.
PFC3B	DFC3A	You must reset the system after installing a DFC3A-equipped module. The PFC3B functions as a PFC3A.
	DFC3B	No restrictions.
	DFC3BXL	The DFC3BXL functions as a DFC3B.
PFC3BXL	DFC3A	You must reset the system after installing a DFC3A-equipped module. The PFC3BXL functions as a PFC3A.
	DFC3B	You must reset the system after installing a DFC3B-equipped module. The PFC3BXL functions as a PFC3B.
	DFC3BXL	No restrictions.

- Observe the following cautions:

Caution During this procedure, wear grounding wrist straps to avoid ESD damage to the module. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Caution Use care not to damage the connectors on the module. If you damage a connector, it will be necessary to return the module to Cisco for repair.

Caution You *must* install screws in all available standoffs. The screws provide grounding between the DFC3 and the module. Failure to install all screws will invalidate the safety approvals and pose a risk of fire and electrical hazard.

Removing the DFC

Note Throughout this publication, unless otherwise noted, the term DFC refers to the DFC, DFC3A, DFC3B, and DFC3BXL.

Note The figures in this procedure show the DFC. The procedure is the same for the DFC, DFC3A, DFC3B, and DFC3BXL.

Caution During this procedure, wear grounding wrist straps to avoid ESD damage to the module. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

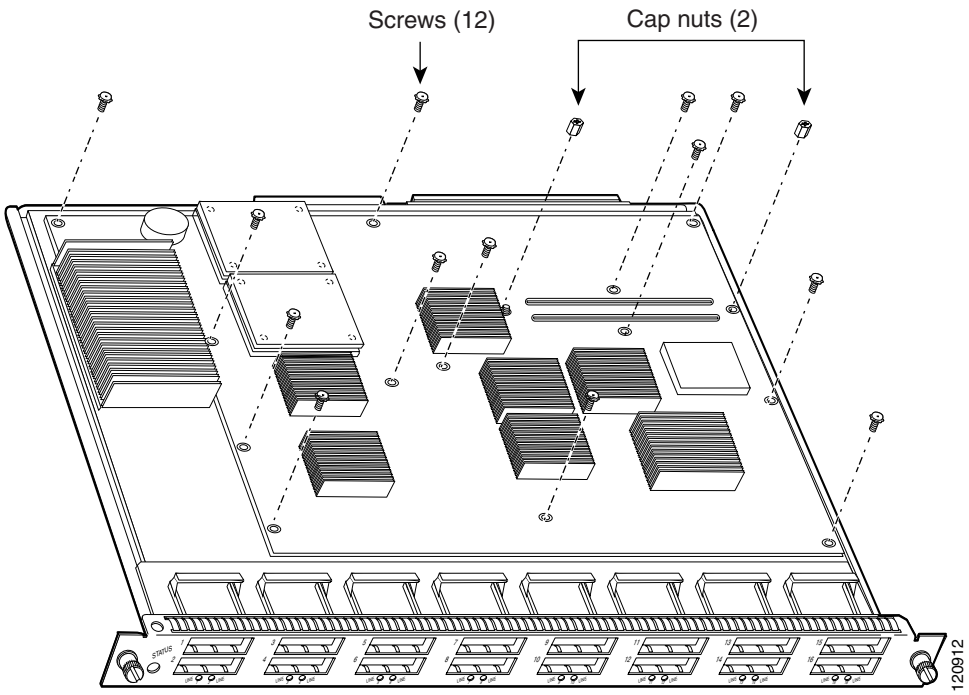
To remove the DFC, perform these steps:

Step 1 Remove the module from the Catalyst 6500 series switch. (Refer to the *Catalyst 6500 Series Switch Module Installation and Verification Note* for removal instructions.)

Step 2 Place the module on an antistatic mat or foam, with the front of the module facing toward you.

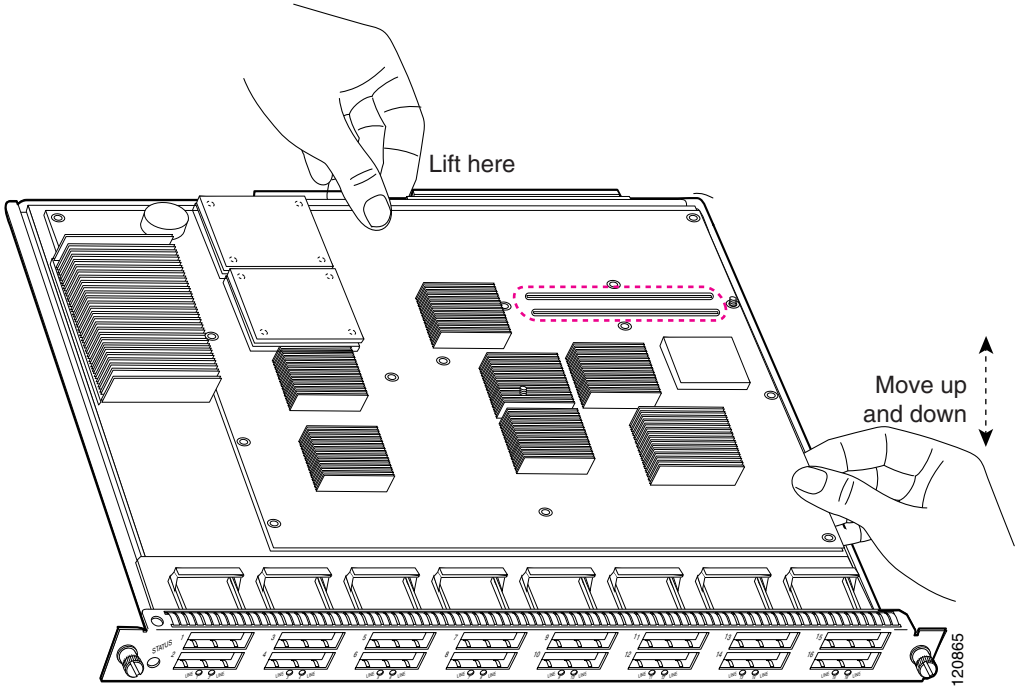
Step 3 Use a Phillips-head screwdriver to remove the securing screws and the two cap nuts from the DFC. (See Figure 1.)

Figure 1 DFC Securing Screws and Cap Nuts



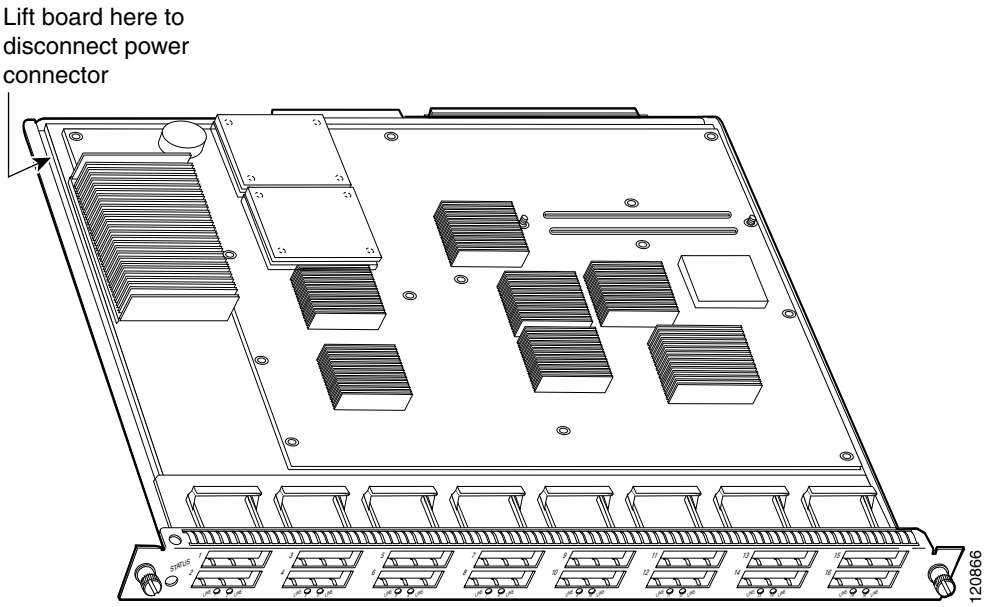
Step 4 Grasp the module at the two locations shown in Figure 2 and gently move the DFC up and down to loosen the board connectors.

Figure 2 Disconnecting the DFC from the Module



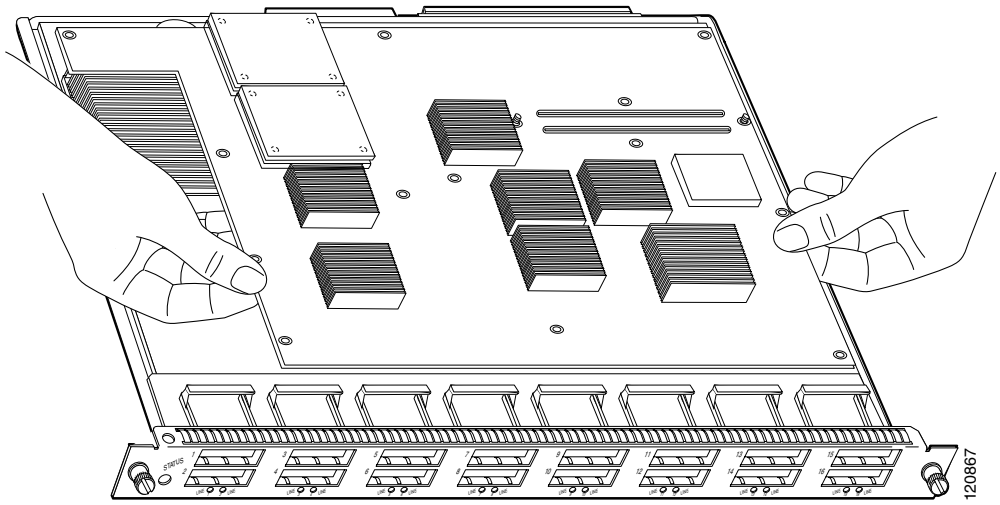
Step 5 Disconnect the power connector as shown in Figure 3.

Figure 3 Disconnecting the Power Connector



Step 6 Gently lift the DFC with both hands simultaneously, and remove the DFC from the module as shown in Figure 4.

Figure 4 Removing the DFC



Step 7 Place the removed DFC on an antistatic mat or antistatic foam pad.

Installing the DFC

Note Throughout this publication, unless otherwise noted, the term DFC refers to the DFC, DFC3A, DFC3B, and DFC3BXL.

Note The figures in this procedure show the DFC. The procedure is the same for the DFC, DFC3A, DFC3B, and DFC3BXL.

Caution During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

To install the DFC on a fabric-enabled module, follow these steps:

Step 1 Remove the module from the Catalyst 6500 series switch. (Refer to the *Catalyst 6500 Series Module Installation Guide* for removal instructions.)

Step 2 Place the module on an antistatic mat or foam, with the front of the module facing toward you (see Figure 6).

Step 3 Remove the DFC from its antistatic bag.

Step 4 Align the two mounting holes on the DFC (see Figure 5) with the two male standoffs on the module (see Figure 6). Make sure that the remaining mounting holes on the DFC are aligned with the remaining standoffs.

Note The DFC is designed to be installed on different modules; therefore, there may be more mounting holes on the DFC than there are standoffs on the module. Not all mounting holes on the DFC will be used in all installations. Visually verify that there are standoffs beneath the mounting holes before installing the securing screws.

Figure 5 Mounting Holes on the DFC

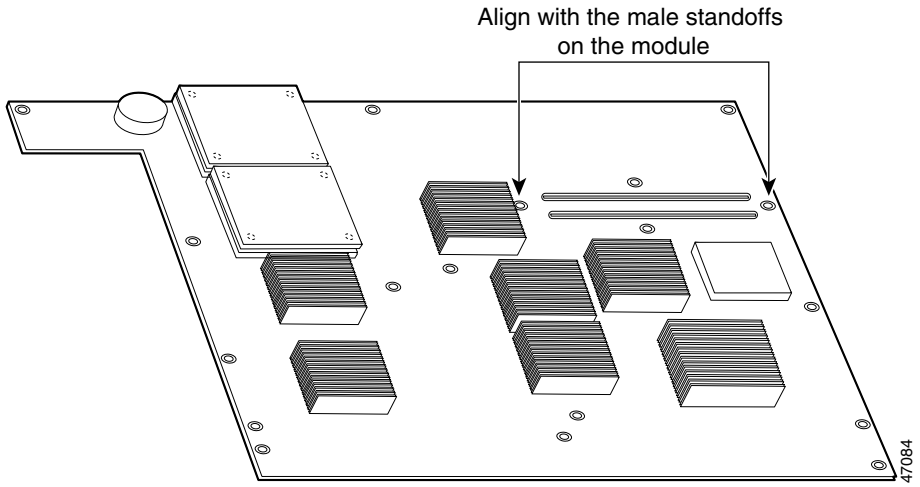
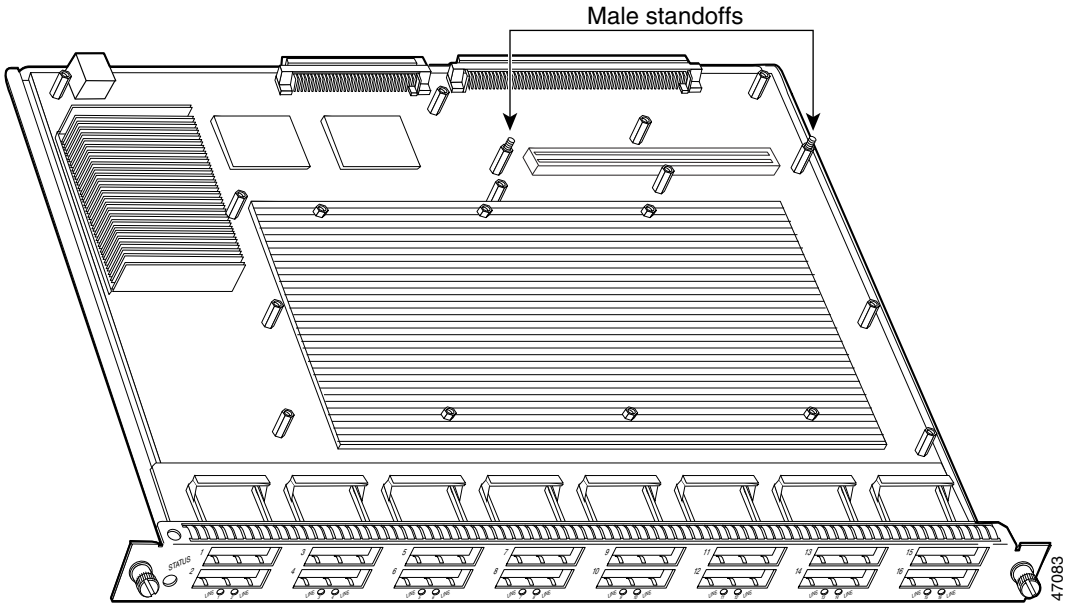
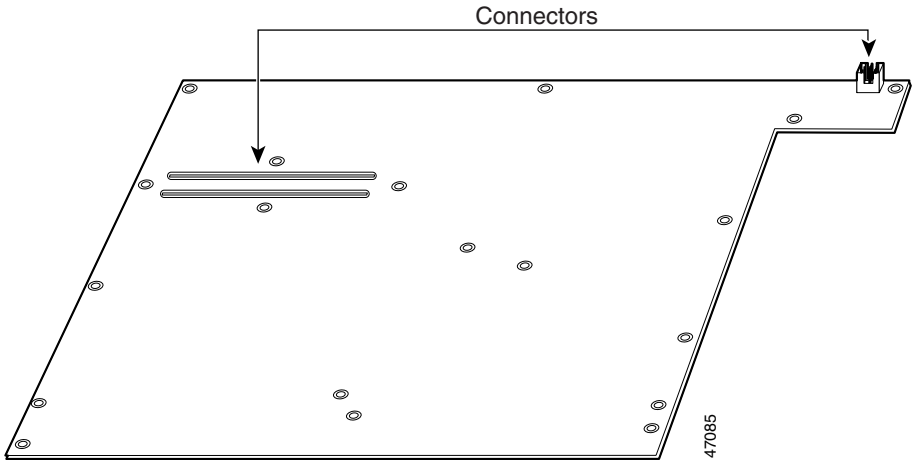


Figure 6 Male Standoff Locations on the Module



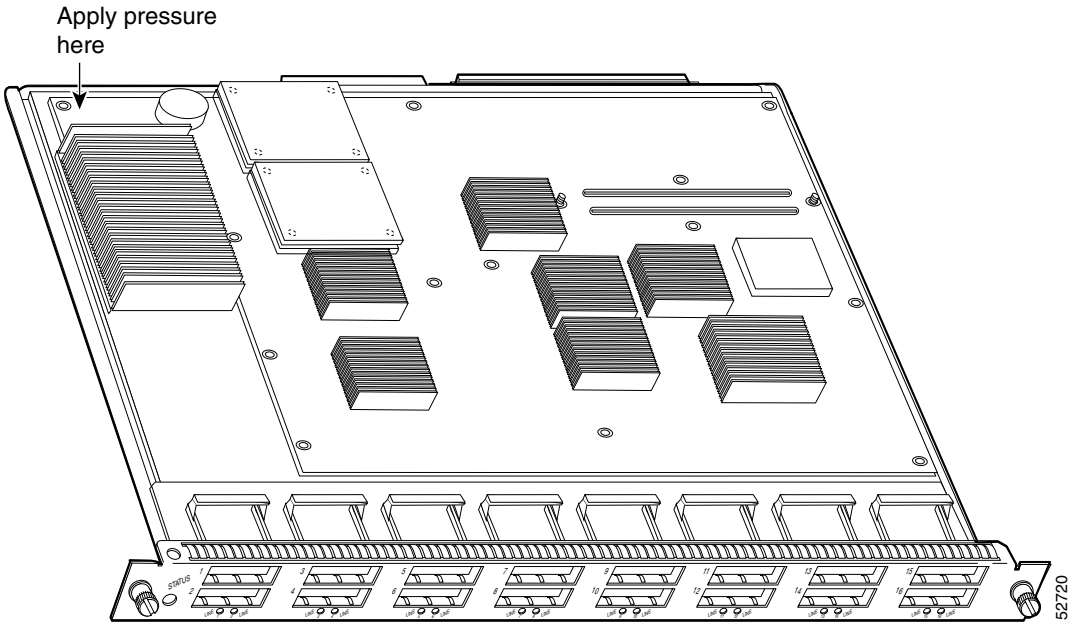
Step 5 Ensure that the connectors on the DFC are aligned with the connectors on the module. Figure 7 shows the connectors on the underside of the DFC.

Figure 7 Distributed Forwarding Card Connectors



Step 6 Apply pressure to the area shown in Figure 8 to seat the power connector.

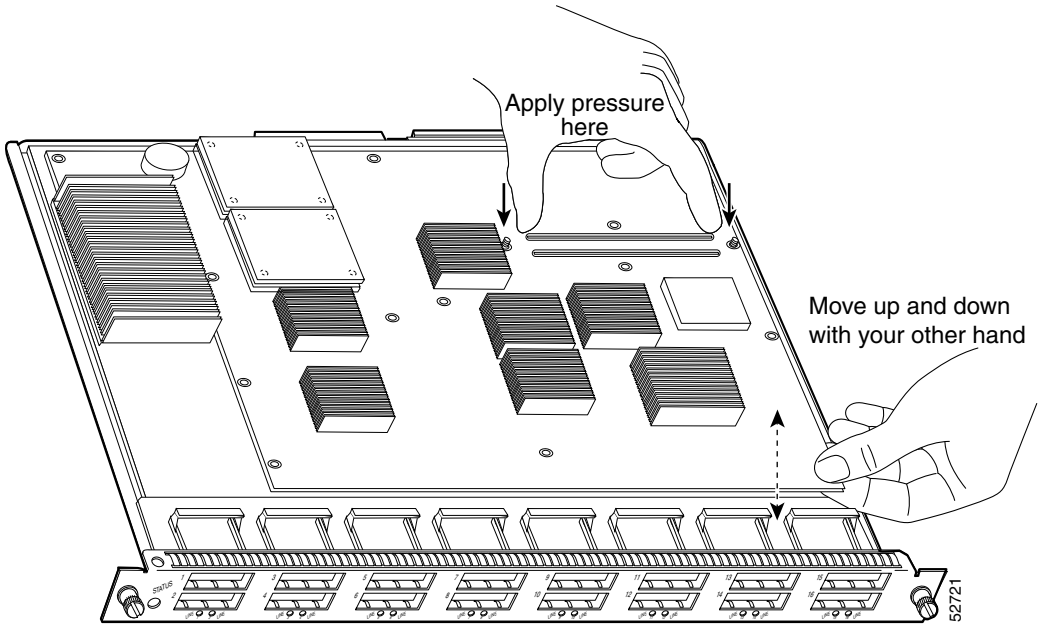
Figure 8 Seating the Power Connector



Caution The following step shows how to preseat the DFC on the module. Preseating the DFC allows you to verify that the keys on the connectors are properly aligned. Fully seating the DFC when the connectors are not aligned will damage the connectors on both the DFC and the module. If you damage a connector, you will have to return the module to Cisco for repair. It is important that the DFC is preseated prior to being fully seated.

Step 7 With your left hand, apply firm pressure at the location shown in Figure 9. While applying pressure with your left hand, move the DFC up and down with your right hand, no more than half an inch in either direction, to preseat the DFC on the module.

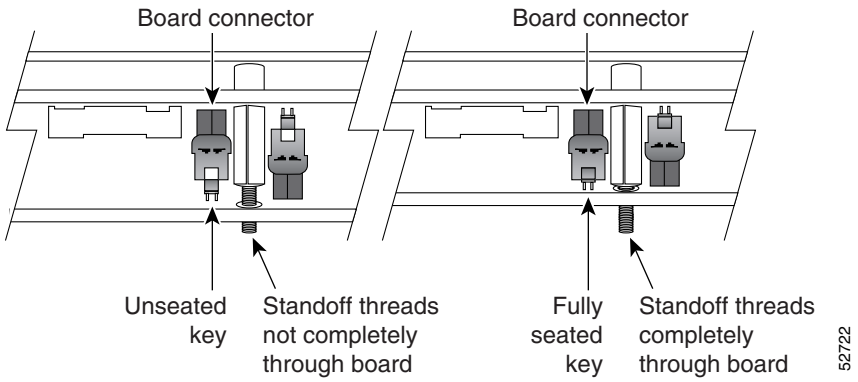
Figure 9 Preseating the Connector



Step 8 Verify that the keys on the connector are aligned and that the gap between the key and the opposing connector is no more than 1/16 inch (1.6 mm) before fully seating the module (see Figure 10):

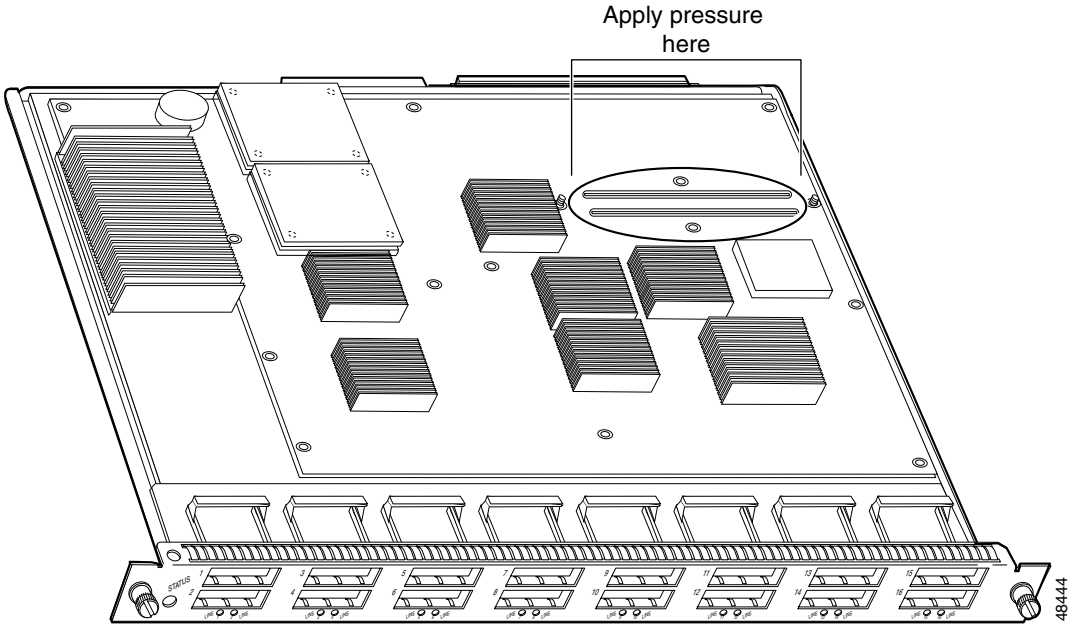
- If the keys are not aligned, remove the DFC and repeat Step 4 through Step 7.
- If the keys are not seated far enough, repeat Step 7.

Figure 10 Connector Keys



Step 9 With the bottom of your hand, apply firm pressure to the location shown in Figure 11 to fully seat the DFC on the module.

Figure 11 Seating the Distributed Forwarding Card on the Module



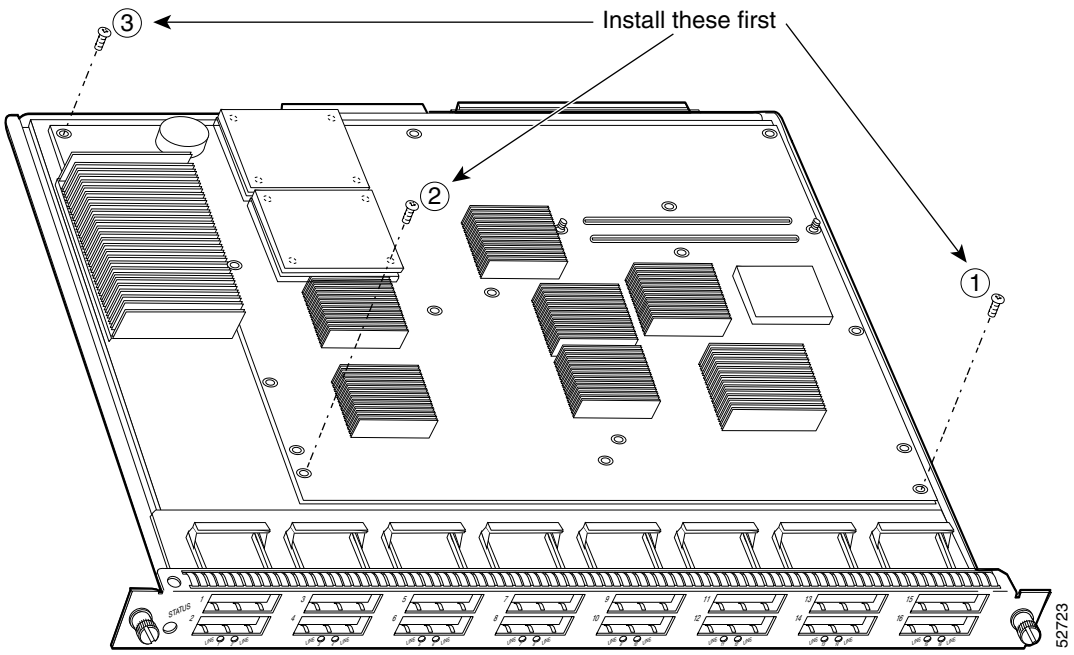
Note The DFC is fully seated when there is no gap between the connector keys, and the bottom of the DFC is in contact with the tops of the standoffs (see Figure 10).

Caution Using the screws to seat the DFC could warp the card. *Before* you install and tighten the securing screws, ensure that the DFC is fully seated by visually verifying that there is no gap between the male and female keys on the connectors and that the bottom of the DFC is in contact with the tops of the standoffs (see Figure 10).

Step 10 Use a Phillips-head screwdriver to install the two screws at the front of the DFC and the one screw at the power connector in the order shown in Figure 12.

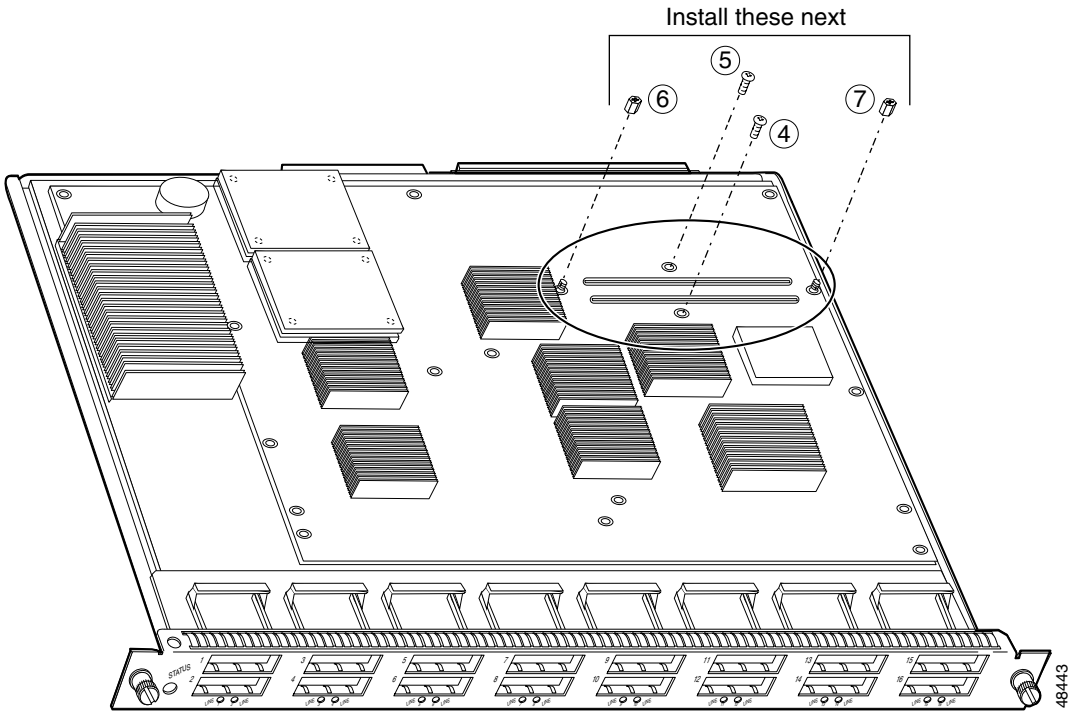
Note You should visually verify that there are standoffs beneath the mounting holes before installing the securing screws.

Figure 12 Installing the First Set of Screws



Step 11 Use a Phillips-head screwdriver to install the two cap nuts and two screws that surround the connector (see Figure 13).

Figure 13 Installing the Second Set of Screws and Cap Nuts

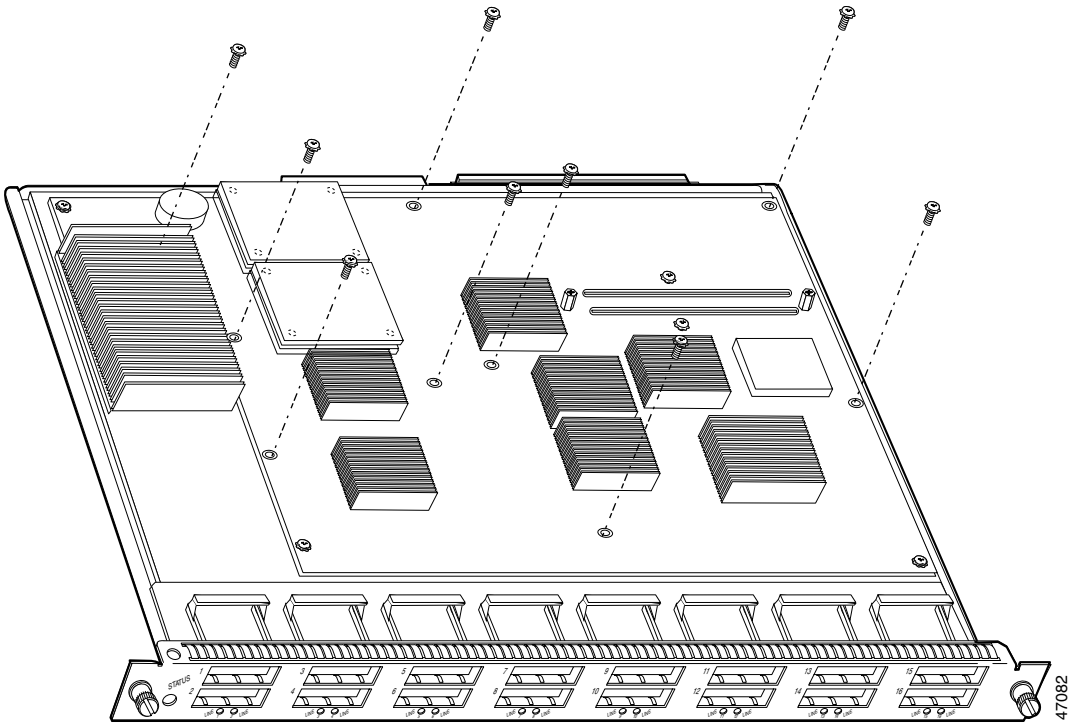


Step 12 Use a Phillips-head screwdriver to install the remaining screws (see Figure 14).

Caution You *must* install screws in all available standoffs. The screws provide grounding between the DFC and the module. Failure to install all screws will invalidate the safety approvals and pose a risk of fire and electrical hazard.

Note You should visually verify that there are standoffs beneath the mounting holes before installing the securing screws.

Figure 14 Installing the Remaining Screws



Step 13 Install the module in the Catalyst 6500 series switch.

Refer to the *Catalyst 6500 Series Module Installation Guide* for installation instructions.

Step 14 Power up the switch.

If the switch comes online, the system acknowledges the module and the DFC. The switch brings the module and DFC online.

Related Documentation

These documents are available for the Catalyst 6500 series switches:

- *Regulatory Compliance and Safety Information for the Catalyst 6500 Series Switches*
- *Catalyst 6500 Series Switch Module Installation and Verification Note*
- *Catalyst 6500 Series Switch Installation Guide*
- *Catalyst 6500 Series Switch Module Guide*
- *Catalyst 6500 Series Switch Software Configuration Guide*
- *Catalyst 6500 Series Switch Command Reference*
- *Catalyst 6500 Series Switch Cisco IOS Software Configuration Guide*
- *Catalyst 6500 Series Switch Cisco IOS Command Reference*
- *Catalyst 6500 Series DFC Memory Upgrade Installation Note*

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You can access the most current Cisco documentation at this URL:

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Cisco Product Security Overview

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- Register to receive security information from Cisco.

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http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

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- Nonemergencies—psirt@cisco.com

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.*x* through 8.*x*.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

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- 1 877 228-7302
- 1 408 525-6532

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Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

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Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
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- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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